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Interpreting Streamflow Forecasts

Introduction

Each month, five forecasts are issued for each forecast point and each forecast period. Unless otherwise specified, all streamflow forecasts are for streamflow volumes that would occur naturally without any upstream influences. Water users need to know what the different forecasts represent if they are to use the information correctly when making operational decisions. The following is an explanation of each of the forecasts.

Most Probable (50 Percent Chance of Exceeding) Forecast. This forecast is the best estimate of streamflow volume that can be produced given current conditions and based on the outcome of similar past situations. There is a 50 percent chance that the streamflow volume will exceed this forecast value. There is a 50 percent chance that the streamflow volume will be less than this forecast value.

The most probable forecast will rarely be exactly right, due to errors resulting from future weather conditions and the forecast equation itself. This does not mean that users should not use the most probable forecast; it means that they need to evaluate existing circumstances and determine the amount of risk they are willing to take by accepting this forecast value.

To Decrease the Chance of Having Too Little Water

If users want to make sure there is enough water available for their operations, they might determine that a 50 percent chance of the streamflow volume being lower than the most probable forecast is too much risk to take. To reduce the risk of not having enough water available during the forecast period, users can base their operational decisions on one of the forecasts with a greater chance of being exceeded (or possibly some point in-between). These include:

70 Percent Chance of Exceeding Forecast. There is a 70 percent chance that the streamflow volume will exceed this forecast value. There is a 30 percent chance the streamflow volume will be less than this forecast value.

90 Percent Chance of Exceeding Forecast. There is a 90 percent chance that the streamflow volume will exceed this forecast value. There is a 10 percent chance the streamflow volume will be less than this forecast value.

To Decrease the Chance of Having Too Much Water

If users want to make sure they don't have too much water, they might determine that a 50 percent chance of the streamflow being higher than the most probable forecast is too much of a risk to take. To reduce the risk of having too much water available during the forecast period, users can base their operational decisions on one of the forecasts with a smaller chance of being exceeded. These include:

30 Percent Chance of Exceeding Forecast. There is a 30 percent chance that the streamflow volume will exceed this forecast value. There is a 70 percent chance the streamflow volume will be less than this forecast value.

10 Percent Chance of Exceeding Forecast. There is a 10 percent chance that the streamflow volume will exceed this forecast value. There is a 90 percent chance the streamflow volume will be less than this forecast value.

Using the forecasts—an example

Using the Most Probable Forecast. Using the example forecasts shown below, users can reasonably expect 36,000 acre-feet to flow past the gaging station on the Mary's River near Deeth between March 1 and July 31.

Using the Higher Exceedance Forecasts. If users anticipate a somewhat drier trend in the future (monthly and seasonal weather outlooks are available from the National Weather Service every two weeks), or if they are operating at a level where an unexpected shortage of water could cause problems, they might want to plan on receiving only 20,000 acre-feet (from the 70 percent chance of exceeding forecast). In seven out of ten years with similar conditions, streamflow volumes will exceed the 20,000 acre-foot forecast.

If users anticipate extremely dry conditions for the remainder of the season, or if they determine the risk of using the 70 percent chance of exceeding forecast is too great, then they might plan on receiving only 5000 acre-feet (from the 90 percent chance of exceeding forecast). Nine out of ten years with similar conditions, streamflow volumes will exceed the 5000 acre-foot forecast.

Using the Lower Exceedance Forecasts. If users expect wetter future conditions, or if the chance that five out of every ten years with similar conditions would produce streamflow volumes greater than 36,000 acre-feet was more than they would like to risk, they might plan on receiving 52,000 acre-feet (from the 30 percent chance of exceeding forecast) to minimize potential flooding problems. Three out of ten years with similar conditions, streamflows will exceed the 52,000 acre-foot forecast.

In years when users expect extremely wet conditions for the remainder of the season and the threat of severe flooding and downstream damage exists, they might choose to use the 76,000 acre-foot (10 percent chance of exceeding) forecast for their water management operations. Streamflow volumes will exceed this level only one year out of ten.

UPPER HUMBOLDT RIVER BASIN										
STREAMFLOW FORECASTS										
FORECAST POINT	FORECAST PERIOD	<-----DRIER----- FUTURE CONDITIONS -----WETTER----->								
		----- Chance of Exceeding -----								
		90%	70%	50% (Most Probable)	30%	10%	25 YR.			
		(1000AF)	(1000AF)	(1000AF) (% AVG.)	(1000AF)	(1000AF)	(1000AF)			
MARY'S RIVER nr Deeth	MAR-JUL	5.0	20.0		36	77		52	76	47
	APR-JUL	8.0	17.0		31	74		45	67	42
LAMOILLE CREEK nr Lamoille	MAR-JUL	6.0	16.0		24	79		32	43	31
	APR-JUL	4.0	15.0		22	75		30	41	30
NF HUMBOLDT RIVER at Devils Gate	MAR-JUL	6.0	12.0		43	73		74	121	59

For more information concerning streamflow forecasting ask your local SCS field office for a copy of "A Field Office Guide for Interpreting Steamflow Forecasts".

GENERAL OUTLOOK

- IDAHO -

SUMMARY

MAY 1, 1991

IN SPITE OF ABOVE NORMAL PRECIPITATION AND VERY LITTLE SNOWMELT DURING APRIL, MOST BASINS IN CENTRAL AND SOUTHERN IDAHO CONTINUE TO REPORT WELL BELOW NORMAL SNOWPACKS. FORECASTS FOR MANY STREAMS CALL FOR LESS THAN 60 PERCENT OF NORMAL RUNOFF. MANY RESERVOIRS IN THE SOUTHERN HALF OF THE STATE CONTAIN LESS THAN HALF OF THEIR NORMAL STORAGE. WHILE NORTHERN IDAHO CAN EXPECT TO RECEIVE ADEQUATE WATER SUPPLIES THIS YEAR, WATER USERS IN SOUTHERN AND CENTRAL IDAHO SHOULD BE PREPARED FOR CRITICALLY SHORT WATER SUPPLIES.

SNOWPACK

Although April continued the pattern of cool temperatures and frequent mountain snowfall established in March, most snowpacks in the southern half of the state are still well below normal. Snowpacks currently range from 40 to 70% of average in the central mountains, 70 to 90% in eastern Idaho and the upper Snake River basin in Wyoming, and 80 to 120% in northern Idaho from the Clearwater basin northward. Cool temperatures during April have delayed snowmelt 3-4 weeks as compared to normal, especially in southern and central Idaho. Some basins along the southern edge of the state report near average snowpacks for May 1 as a result of the delayed snowmelt. The delayed runoff from the persisting snowpack should help extend limited water supplies a little later into the summer season.

PRECIPITATION

Cool temperatures and above average precipitation during April have improved soil moisture conditions in southern and central Idaho. Boise received 1.65 inches of rainfall during April, 134% of average for the month. Mountain SNOTEL stations reported above normal precipitation for the month as well, ranging from 130 to 170% of average across the state. The driest areas were the Wood and Lost River basins, which received slightly below normal valley precipitation and slightly above normal mountain precipitation. Temperatures for the month were below normal in central and southern Idaho, with Boise reporting a 0.3 degree departure below average. The National Weather Service 30 day outlook for May calls for above normal precipitation for northern Idaho and near normal precipitation for the southern part of the state, with near normal temperatures statewide.

RESERVOIRS

Reservoir levels across the state improved only slightly during April due to below normal runoff coupled with the onset of irrigation demand in many streams. Currently, reservoir storages are near to slightly above average in the northern part of the state and on the Snake River, above average in the Payette basin, and below to well below average elsewhere. The Payette basin reservoirs are not expected to fill totally, yet an adequate water supply is expected. The Snake system is not expected to fill either, although an adequate but tight supply is forecast. The Boise system is expected to achieve 50% refill, which will supply only 65% of the average irrigation demand. Extremely low storages continue to be reported in Magic (19% of average, 17% of capacity), Oakley (41% of average, 21% of capacity), and Salmon Falls Creek (36% of average, 16% of capacity). The combination of low carryover storage and low expected inflow paints a gloomy picture for water supply in these basins. Most reservoirs in the southern half of the state will be drawn down very low by the end of the summer. Water users should keep in touch with their local reservoir operators for more specific information.

STREAMFLOW

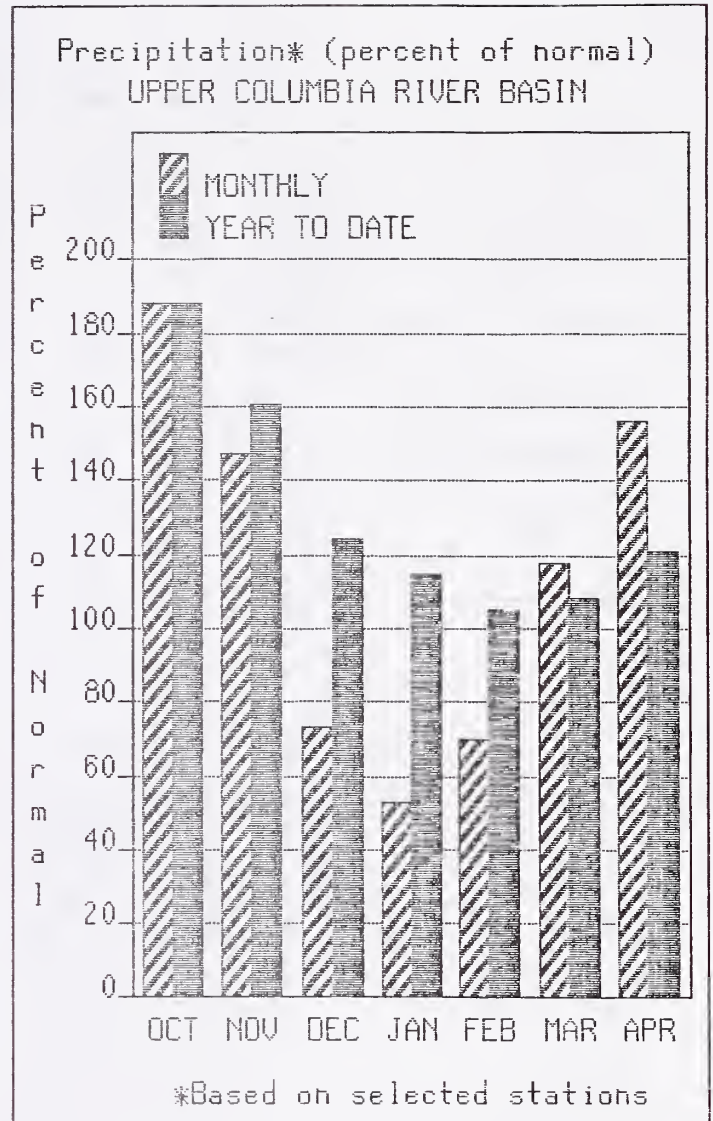
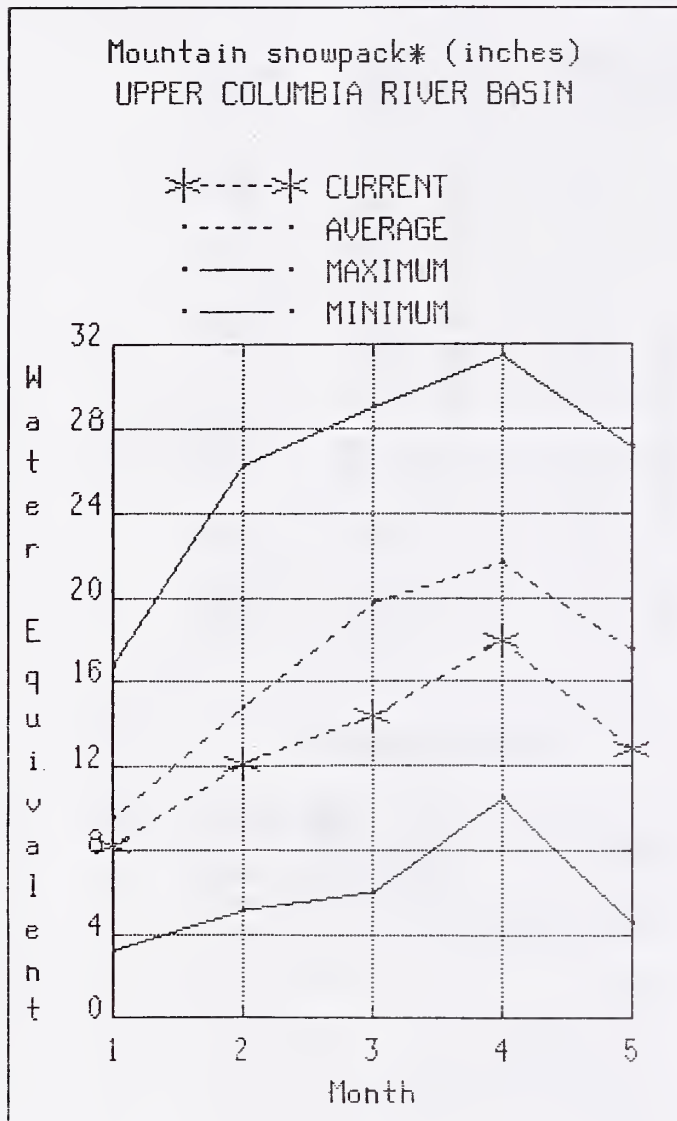
Most streams in the southern part of the state did not respond to snowmelt until late April, about 2-3 weeks later than normal. This delayed melt will shift the timing of runoff later into the summer season when it is needed the most. Streamflows during April were above average in northern Idaho, below average in southern and central Idaho, and near average in eastern Idaho and the upper Snake River basin. May-September forecasts are calling for near average runoff in northern Idaho, 25 to 65% in southern and central Idaho, and 60 to 80% of average in eastern Idaho and the upper Snake River basin. Water users in southern and central Idaho should be prepared for short water supplies and should keep in touch with their local irrigation districts for more specific information.

RECREATIONAL OUTLOOK

Continued mountain snowfall and cool temperatures during April are good news for those planning to float Idaho rivers this summer. Northern Idaho rivers should provide a long boating season, with plenty of big water thrills. In spite of the below normal snowpack in the central mountains, there will be adequate flows for the summer boating season in the Salmon River drainage. The Payette River basin will provide excellent recreational opportunities due to above average storage in Deadwood and Cascade Reservoirs. The Bruneau River in the southwest desert will have a short season with low flows. In summary, 1991 promises to provide a variety of water based recreation opportunities across the state.

Upper Columbia River Basin

May 1, 1991



WATER SUPPLY OUTLOOK

April precipitation was near normal in the Idaho panhandle, virtually assuring adequate water supplies for the coming spring and summer. Currently, snowpacks range from 75 to 125% of average in the basin. Reservoir storage is near average, and streamflow forecasts for the May-September period call for near to only slightly below normal flows for most streams. All these factors point to an adequate water supply for the Idaho panhandle in the 1991 season.

UPPER COLUMBIA RIVER BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	FUTURE CONDITIONS						
		<----- DRIER ----->		----- WETTER ----->		CHANCE OF EXCEEDING *		
		90% (1000AF)	70% (1000AF)	50% (MOST PROBABLE) (1000AF)	30% (1000AF)	10% (1000AF)	25 YR. (1000AF)	
KOOTENAI at Leona (1,2)	MAY-SEP	8410	9340	9760	127	10200	11100	7685
	MAY-JUL	7220	8010	8370	127	8730	9520	6585
CLARK FK at Whitehorse Rps (1,2)	MAY-SEP	10500	11900	12500	106	13100	14500	11764
	MAY-JUL	9390	10600	11200	106	11800	13000	10538
PENO OREILLE LAKE inflow (1,2)	MAY-SEP	11800	13300	14000	108	14700	16200	12960
	MAY-JUL	10600	12000	12600	108	13200	14600	11680
PRIEST nr Priest River (1,2)	MAY-SEP	645	755	805	113	855	965	715
	MAY-JUL	330	490	560	103	630	790	543
COEUR D'ALENE at Enaville (1)	MAY-SEP	305	450	515	102	580	725	503
	MAY-JUL	905	980	1030	102	1080	1150	1008
ST. JOE at Calder	MAY-SEP	845	915	960	102	1010	1080	938
	MAY-JUL	1360	1790	1980	101	2170	2600	1957
SPOKANE nr Post Falls (1,2)	MAY-SEP	1290	1700	1880	101	2060	2470	1859
	MAY-JUL							

RESERVOIR STORAGE

(1000AF)

WATERSHED SNOWPACK ANALYSIS

RESERVOIR	USEABLE : ** USEABLE STORAGE **				WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF	
	CAPACITY:	THIS	LAST				LAST YR.	AVERAGE
		YEAR	YEAR	AVG.				
HUNGRY HORSE	3451.0	1648.0	2297.0	2040.0	Kootenai ab Bonners Ferry	52	147	122
FLATHEAD LAKE	1791.0	1011.0	1206.0	929.0	Moyie River	3	168	133
PENO OREILLE	1561.2	817.2	440.6	920.7	Pend Oreille River	119	151	105
NOXON RAPIDS	335.0	308.9	317.0	186.3	Clark Fork River	83	153	93
COEUR D'ALENE	291.2	277.2	392.2	317.2	Priest River	5	127	91
PRIEST LAKE	97.7	75.0	89.0	74.4	Rathdrum Creek	1	0	0
					Hayden Lake	0	0	0
					Coeur d'Alene River	8	125	77
					St. Joe River	7	125	102
					Spokane River	15	125	91
					Palouse River	0	0	0

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

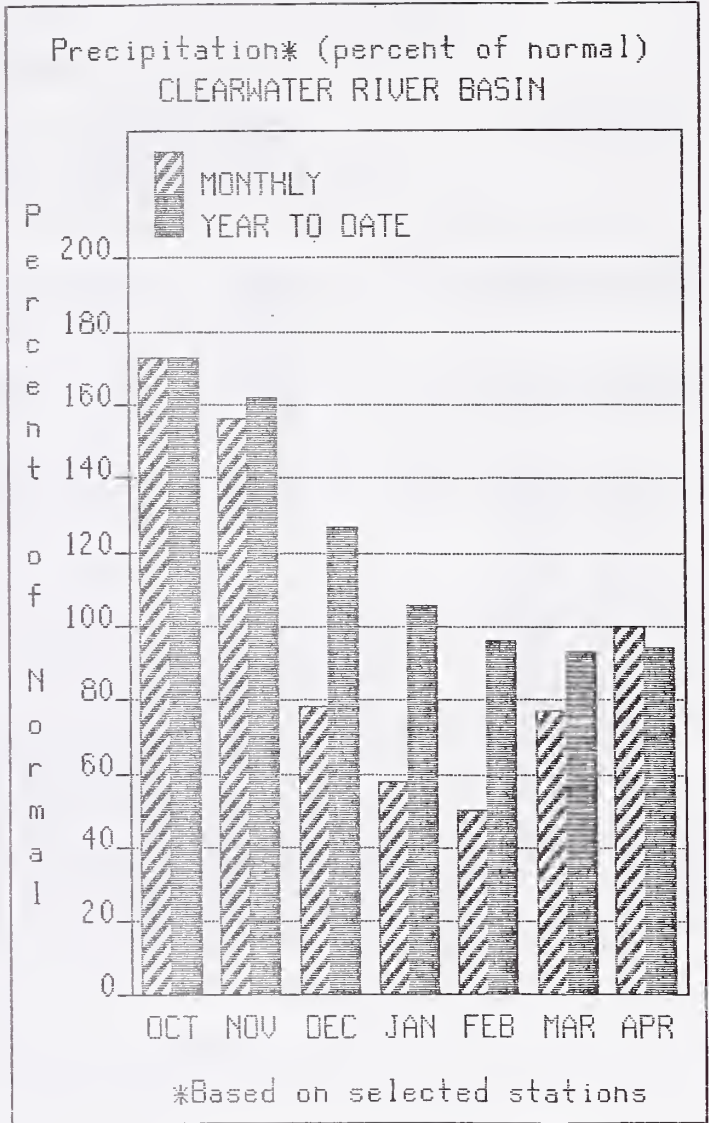
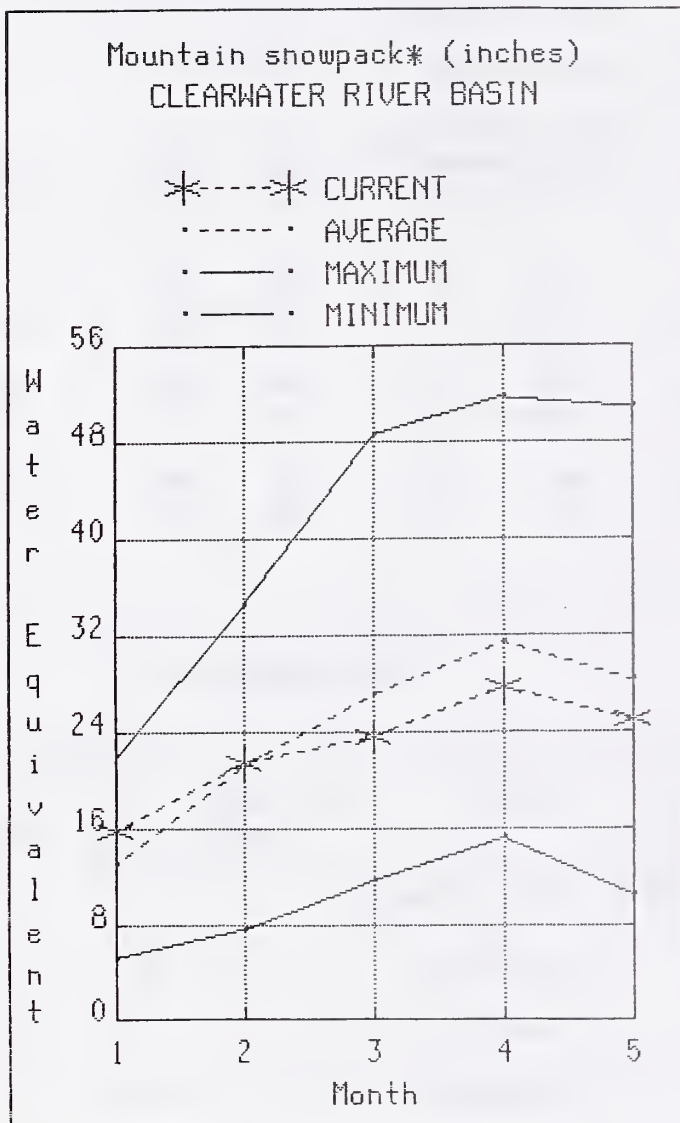
The average is computed for the 1961-1985 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

Clearwater River Basin

May 1, 1991



WATER SUPPLY OUTLOOK

April provided near normal precipitation over the Clearwater basin, virtually ensuring adequate water supplies for the coming season. Currently, snowpacks range from 85% of average in the Lochsa basin to 96% in the N.F. Clearwater basin. Consequently, May-September streamflow forecasts call for near to slightly below normal runoff, ranging from 79% of average for the Clearwater at Orofino to 87% for Dworshak Reservoir inflow. Reservoir storage is above normal in Dworshak Reservoir, which reports 127% of normal storage (84% of capacity). The whitewater boating season should be excellent on the Lochsa and Selway Rivers, which report 85 and 86% of normal snowpack, respectively.

CLEARWATER RIVER BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	<div> <div><----- DRIER -----</div> <div>FUTURE CONDITIONS</div> <div>----- WETTER -----></div> </div>						
		CHANCE OF EXCEEDING *						25 YR. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (MOST PROBABLE) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
DWORSHAK RESERVOIR inflow (1)	MAY-SEP	1630	1920	2050	87	2180	2470	2366
	MAY-JUL	1500	1770	1890	87	2010	2280	2179
CLEARWATER at Orofino (1)	MAY-SEP	2390	3080	3390	79	3700	4390	4318
	MAY-JUL	2260	2910	3200	79	3490	4140	4045
CLEARWATER at Spalding (1,2)	MAY-SEP	4070	5000	5430	80	5860	6850	6787
	MAY-JUL	3800	4630	5030	80	5430	6390	6325

RESERVOIR STORAGE (1000AF)

WATERSHED SNOWPACK ANALYSIS

RESERVOIR	USEABLE CAPACITY :	** USEABLE STORAGE **			WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF	
		THIS YEAR	LAST YEAR	AVG.			LAST YR.	AVERAGE
DWORSHAK	3467.8	2900.1	3117.7	2276.0	North Fork Clearwater	12	125	96
					Lochsa River	4	146	86
					Selway River	6	155	86
					Clearwater River	19	134	93

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

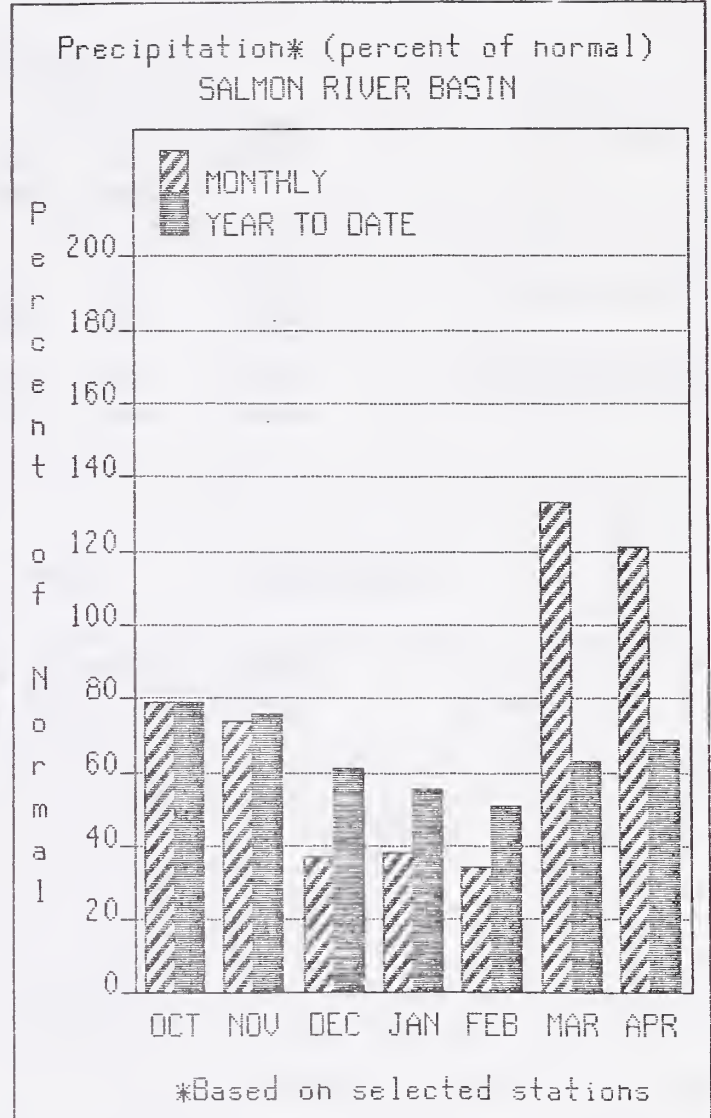
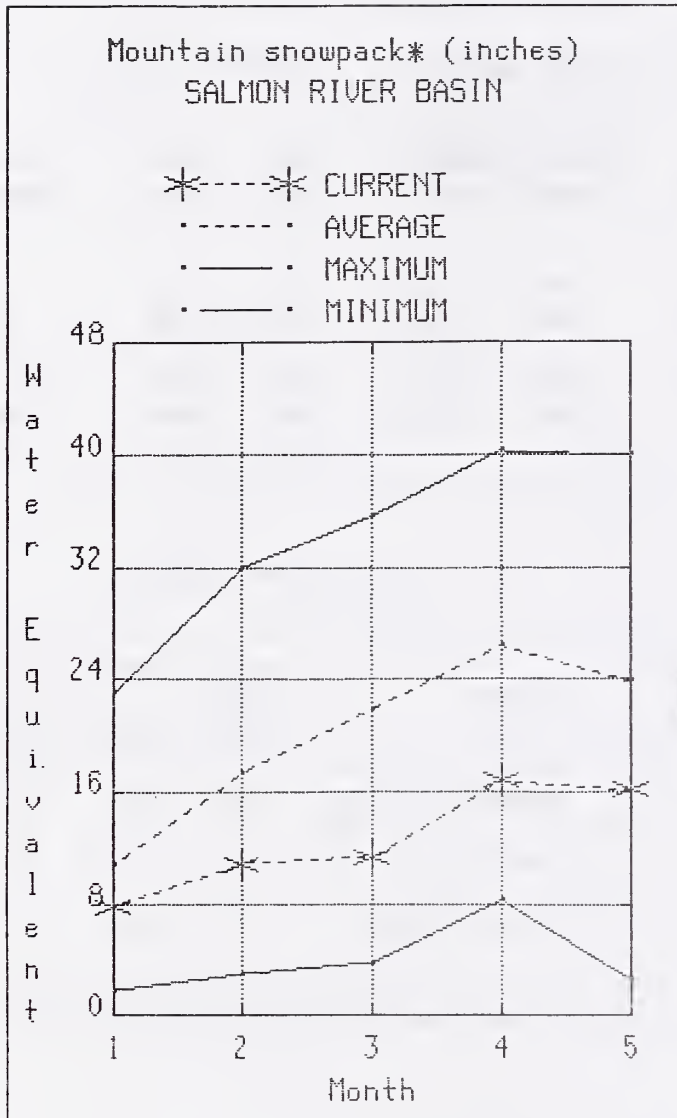
The average is computed for the 1961-1985 base period.

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(2) - The value is natural flow - actual flow may be affected by upstream water management.

Salmon River Basin

May 1, 1991



WATER SUPPLY OUTLOOK

Cool temperatures and much needed snowfall have continued to build the mountain snowpack in the Salmon River basin during April. Currently, snowpacks range from 70 to 92% of average in the basin. In spite of this improvement over last month, streamflow forecasts are still low, ranging from 60% of average for the Salmon at Salmon to 65% for the Salmon at Whitebird. While these forecasts should not significantly impact water-based recreation or other uses in the basin, all water users should be prepared for lower than normal water supplies and an earlier than normal return to low flow conditions.

SALMON RIVER BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	<----- DRIER -----		FUTURE CONDITIONS		----- WETTER ----->		25 YR. (1000AF)
		-----		CHANCE OF EXCEEDING *		-----		
		90% (1000AF)	70% (1000AF)	50% (MOST PROBABLE) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
<hr/>								
SALMON at Salmon (1)	MAY-SEP	275	480	590	60	700	895	984
	MAY-JUL	230	405	495	60	585	750	826
SALMON at White Bird (1)	MAY-SEP	2990	3730	4120	65	4510	5220	6363
	MAY-JUL	2670	3340	3690	65	4040	4660	5678

RESERVOIR STORAGE		(1000AF)	WATERSHED SNOWPACK ANALYSIS		
RESERVOIR	USEABLE ;	** USEABLE STORAGE **	WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF ----- LAST YR. AVERAGE
	CAPACITY ;	THIS LAST AVG.			
	YEAR	YEAR			
			Salmon River ab Salmon	6	160 70
			Lemhi River	7	167 92
			Salmon River Total	24	175 74

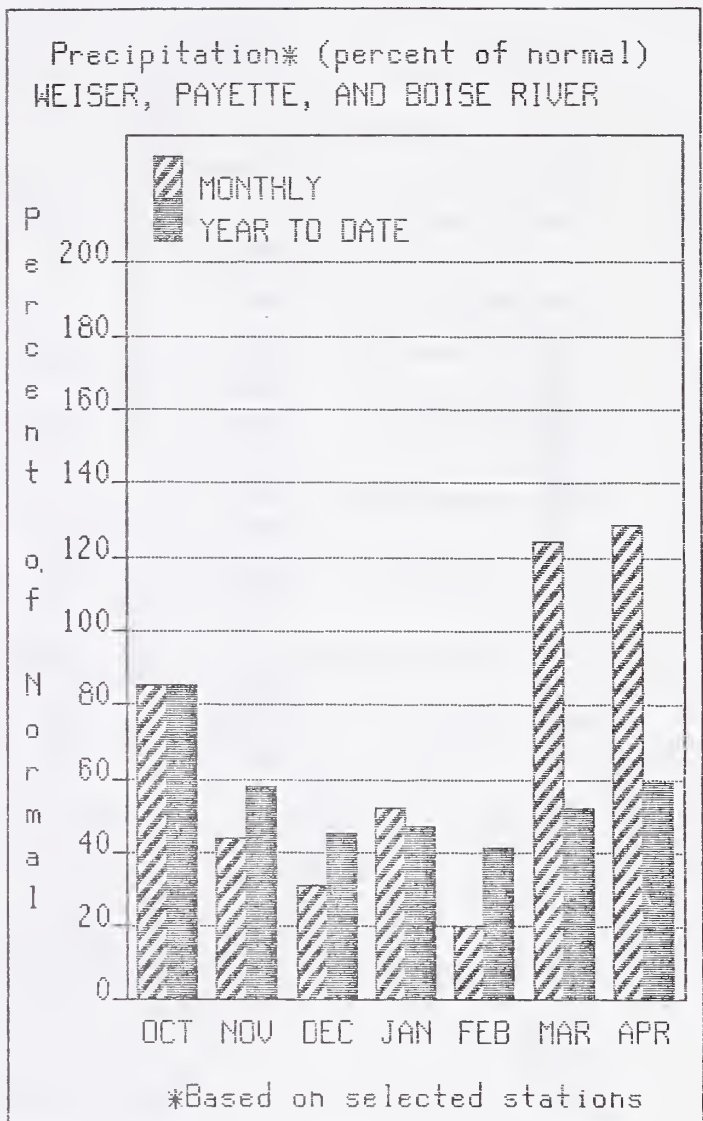
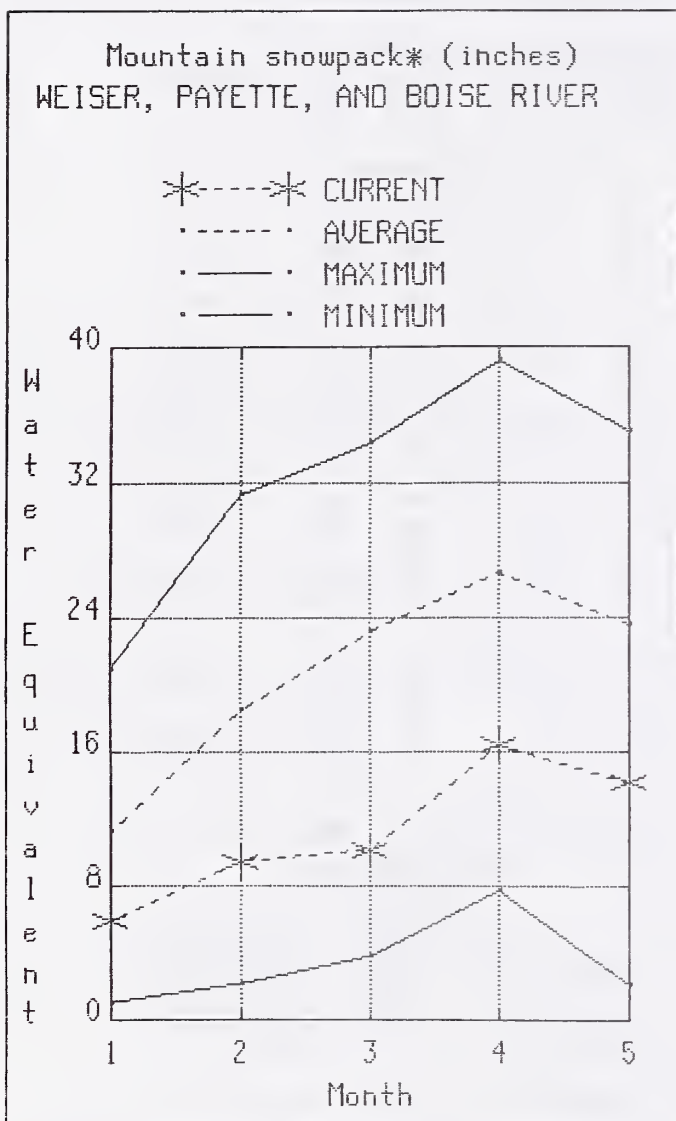
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1985 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

Weiser, Payette, and Boise River Basin

May 1, 1991



WATER SUPPLY OUTLOOK

Near normal precipitation during April has improved the mountain snowpack somewhat over last month, but conditions are still well below normal. Currently, snowpacks range from 46% of average in the Weiser basin to 66% in the Boise basin. Reservoir storage is slowly increasing, with 117% of average storage in the Payette basin (70% of capacity) and 66% in the Boise basin (48% of capacity). May-September streamflow forecasts call for well below normal volumes, ranging from only 36 to 66% of average. While irrigation supply should be adequate in the Payette River basin, water users in the Boise system should expect only 65% of normal supply. All water users should keep in touch with their local irrigation district for more specific information.

WEISER, PAYETTE, AND BOISE RIVER BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	<div> <div><----- ORIER -----</div> <div>FUTURE CONDITIONS</div> <div>----- WETTER -----></div> </div>						
		CHANCE OF EXCEEDING *						25 YR. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (MOST PROBABLE) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
WEISER nr Weiser (1)	MAY-JUL	19.0	54	97	36	141	235	272
SF PAYETTE at Lowman	MAY-SEP	200	225	240	52	255	280	458
	MAY-JUL	170	191	205	51	220	240	399
DEADWOOD RESERVOIR inflow (1)	MAY-JUL	48	60	69	53	78	90	129
NF PAYETTE at Cascade (1,2)	MAY-SEP	162	225	255	53	285	350	479
	MAY-JUL	144	205	230	52	255	315	441
NF PAYETTE nr Banks (2)	MAY-SEP	187	255	300	50	345	415	601
	MAY-JUL	170	235	275	49	320	380	557
PAYETTE nr Horseshoe Bend (1,2)	MAY-SEP	450	670	775	50	880	1100	1551
	MAY-JUL	410	610	705	50	800	1000	1406
BOISE nr Twin Springs (1)	MAY-SEP	325	375	400	66	425	475	602
	MAY-JUL	275	325	350	64	375	425	544
SF BOISE at Anderson Rnch Om (1,2)	MAY-SEP	138	215	250	49	285	365	507
	MAY-JUL	121	193	225	48	255	330	466
BOISE nr Boise (1,2)	MAY-SEP	550	700	765	59	830	980	1295
	MAY-JUL	465	605	665	57	725	865	1175

RESERVOIR STORAGE (1000AF)					WATERSHED SNOWPACK ANALYSIS			
RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF	
		THIS YEAR	LAST YEAR	AVG.			LAST YR.	AVERAGE
MANN CREEK	11.3	9.4	11.8	10.4	Mann Creek	1	1613	50
CASCADE	703.2	503.6	607.5	411.7	Weiser River	4	836	46
DEADWOOD	162.0	98.9	122.2	101.1	North Fork Payette	7	283	63
ANDERSON RANCH	464.2	173.4	309.6	327.2	South Fork Payette	7	178	63
ARROWROCK	286.6	33.2	94.9	214.9	Payette River Total	14	218	63
LUCKY PEAK	307.0	259.7	268.5	182.9	Middle & North Fork Boise	7	142	66
LAKE LOWELL (DEER FLAT)	177.0	123.0	117.2	169.8	South Fork Boise River	6	138	66
					Boise River Total	14	165	66
					Canyon Creek	0	0	0

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

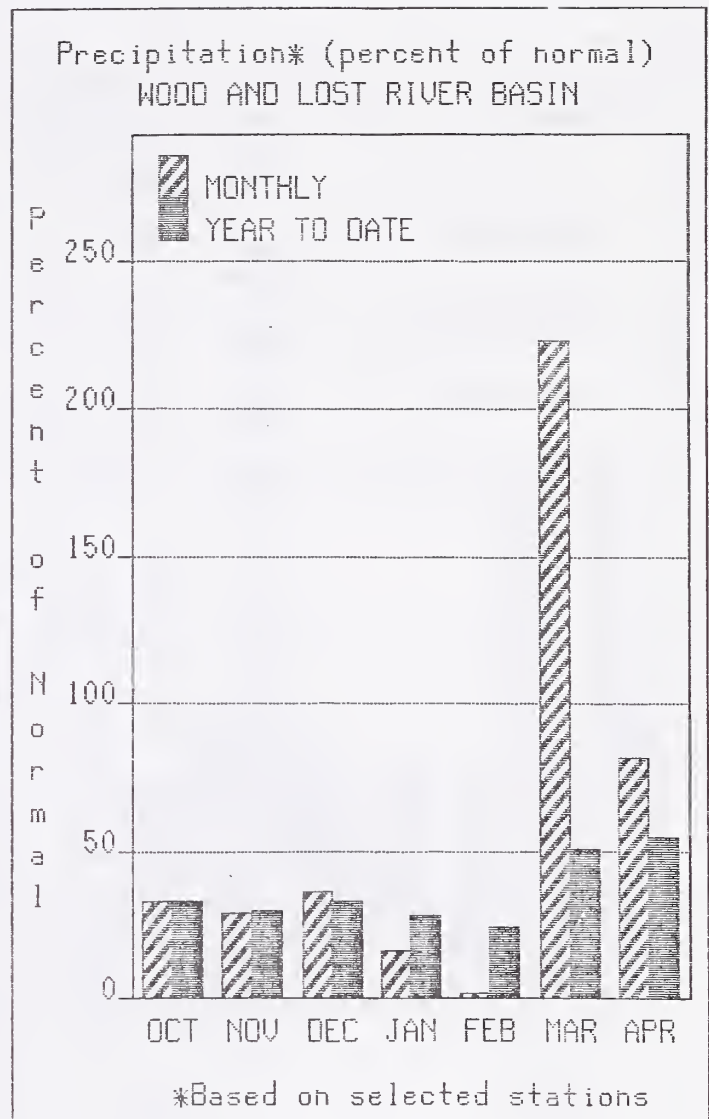
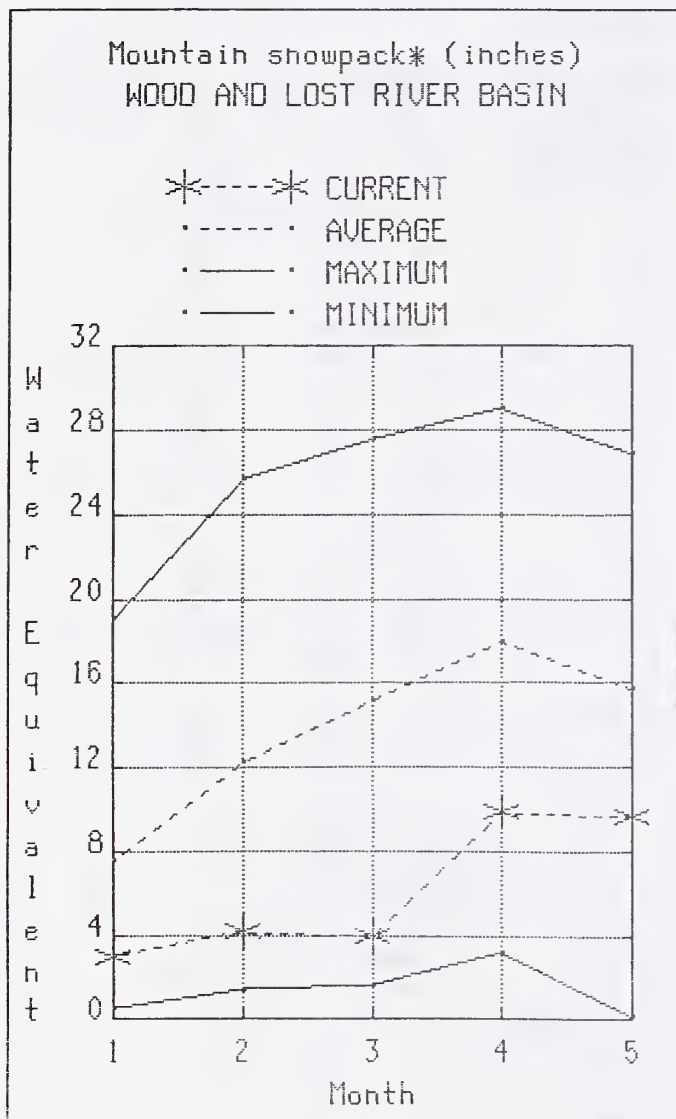
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Big Wood, Little Wood, Big Lost, and Little Lost River Basin

May 1, 1991



WATER SUPPLY OUTLOOK

"Too little too late" would best describe the March and April snowfall in the Wood and Lost River basins. Snowpacks have continued to improve during April but are still only 40 to 70% of average. May-September streamflow forecasts continue to reflect the low snowpack situation and call for only 25 to 70% of average flows. Extremely low storage in Magic reservoir (19% of average, 17% of capacity) further compounds the bleak outlook. All water users in the Wood and Lost River basins should be prepared for **CRITICALLY SHORT WATER SUPPLIES**, and should keep in touch with their local irrigation districts for more specific information.

BIG WOOD, LITTLE WOOD, BIG LOST, AND LITTLE LOST RIVER BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	<div> <div><----- ORIER ----- FUTURE CONDITIONS ----- WETTER -----></div> <div>CHANCE OF EXCEEDING *</div> </div>						
		90%	70%	50% (MOST PROBABLE)		30%	10%	25 YR.
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	(1000AF)
BIG WOOD nr Bellevue	MAY-SEP	21	46	63	34	80	106	186
	MAY-JUL	15.0	39	55	32	71	95	171
BIG WOOD bl Magic Dam (2)	MAY-SEP	10.0	40	60	25	80	110	237
	MAY-JUL	6.0	34	53	24	72	100	221
LITTLE WOOD nr Carey	MAY-SEP	29	38	44	55	50	59	80
	MAY-JUL	25	33	39	55	45	53	71
BIG LOST at Howell Ranch nr Chilly	MAY-SEP	107	124	135	65	146	163	208
	MAY-JUL	93	108	118	65	128	143	181
BIG LOST bl Mackay Reservoir (2)	MAY-SEP	82	97	107	59	117	132	182
	MAY-JUL	63	77	87	59	97	111	148
LITTLE LOST bl Wet Ck	MAY-SEP	15.0	21	24	67	28	33	36
	MAY-JUL	13.0	16.6	19.0	68	21	25	28
LITTLE LOST nr Howe	MAY-SEP	22	25	27	71	29	33	38
	MAY-JUL	16.6	18.6	20	71	21	23	28

RESERVOIR STORAGE

(1000AF)

WATERSHED SNOWPACK ANALYSIS

RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF	
		THIS YEAR	LAST YEAR	AVG.			LAST YR.	AVERAGE
MAGIC	191.5	32.1	71.8	167.7	Big Wood ab Magic	9	187	62
LITTLE WOOD	30.0	19.3	27.5	24.6	Camas Creek	2	0	40
CAREY VALLEY	NO REPORT				Big Wood Total	11	198	61
MACKAY	44.5	28.6	29.8	34.2	Little Wood River	3	0	55
					Fish Creek	0	0	0
					Big Lost River	5	241	63
					Little Lost River	3	280	73

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

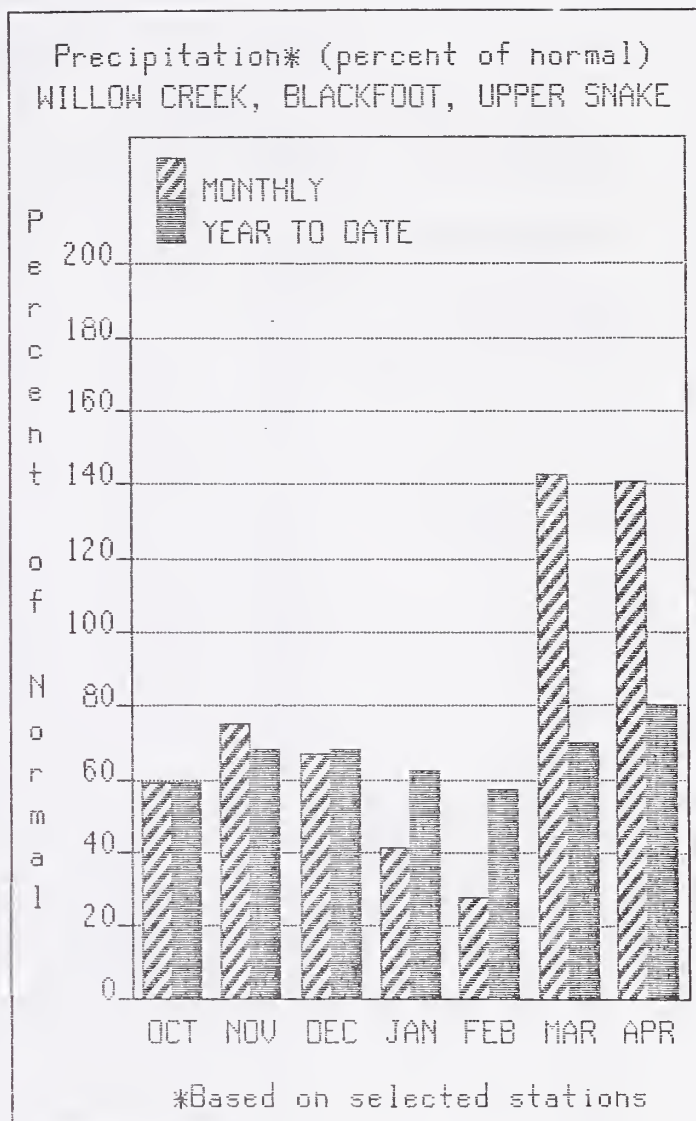
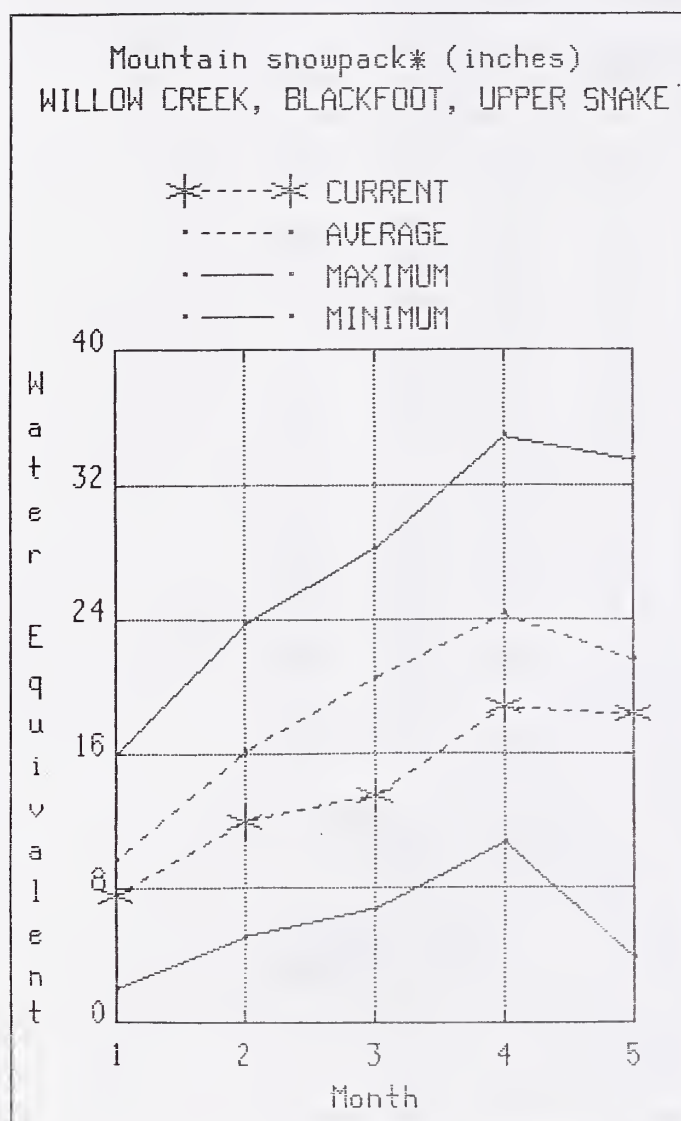
The average is computed for the 1961-1985 base period.

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(2) - The value is natural flow - actual flow may be affected by upstream water management.

Willow Creek, Blackfoot, Upper Snake, and Portneuf River Basin

May 1, 1991



WATER SUPPLY OUTLOOK

Eastern Idaho and the upper Snake River basin in western Wyoming received slightly above normal precipitation during April. Cool temperatures have delayed snowmelt, and the mountain snowpack currently ranges from 58% of average in the Blackfoot basin to 104% in the Portneuf. The high snowpack figures are primarily the result of the lack of snowmelt as opposed to increased accumulation during April. Streamflow forecasts continue to call for below normal runoff, ranging from 73% for the Henrys Fork to 81% for the Teton above S. Leigh Creek. Reservoir storage is near normal (103% of average, 74% of capacity) for nine key reservoirs on the Snake mainstem. Water supplies should be adequate but tight for most water users on the Snake system this summer, but other basins may experience shortages. All water users should keep in touch with their local irrigation district for more specific information.

WILLOW CREEK, BLACKFOOT, UPPER SNAKE, AND PORTNEUF RIVER BASIN

STREAMFLOW FORECASTS								
FORECAST POINT	FORECAST PERIOD	FUTURE CONDITIONS						25 YR. (1000AF)
		<----- DRIER ----->		CHANCE OF EXCEEDING *		>----- WETTER ----->		
		90% (1000AF)	70% (1000AF)	50% (MOST PROBABLE) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
HENRYS FORK nr Ashton (2)	MAY-SEP	405	445	465	73	485	515	639
	MAY-JUL	285	315	330	73	345	365	449
HENRYS FORK nr Rexburg (2)	MAY-SEP	795	925	1010	73	1100	1190	1389
	MAY-JUL	610	705	770	73	835	905	1055
FALLS nr Squirrel (1,2)	APR-JUL	245	285	300	80	320	355	373
TETON ab S Leigh Ck nr Driggs	MAY-SEP	101	124	139	81	154	177	172
	MAY-JUL	73	89	100	81	111	127	123
TETON nr St. Anthony	MAY-SEP	300	325	345	79	365	390	434
	MAY-JUL	235	255	270	79	285	305	342
SNAKE nr Moran (1,2)	APR-SEP	700	770	805	91	840	910	888
PALISADES RESERVOIR inflow (1,2)	APR-SEP	2660	2950	3080	80	3210	3500	3852
SNAKE nr Heise (2)	MAY-SEP	2270	2760	3030	80	3300	3750	3790
	MAY-JUL	1900	2310	2540	80	2770	3140	3173
SNAKE nr Blackfoot (1,2)	MAY-SEP	3150	3670	3980	76	4290	4820	5243
	MAY-JUL	2490	2920	3160	76	3400	3820	4152
PORTNEUF at Topaz	MAY-SEP	45	54	59	76	65	73	78
	MAY-JUL	31	38	43	75	48	55	57

RESERVOIR STORAGE (1000AF)					WATERSHED SNOWPACK ANALYSIS			
RESERVOIR	USEABLE : CAPACITY :	** USEABLE STORAGE **			WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF	
		THIS YEAR	LAST YEAR	AVG.			LAST YR.	AVERAGE
ISLAND PARK	127.6	114.6	134.8	125.7	Camas-Beaver Creeks	3	1096	69
GRASSY LAKE	15.2	13.6	14.4	11.5	Henrys Fork River	11	207	83
JACKSON LAKE	824.7	575.8	668.7	494.3	Teton River	9	187	92
PALISADES	1357.0	633.0	1301.8	871.8	Snake above Palisades	22	168	82
AMERICAN FALLS	1700.0	1509.6	1447.0	1542.9	Snake above Jackson Lake	5	179	90
BROWNLEE	975.3	970.1	953.0	515.9	Gros Ventre River	2	123	100
BLACKFOOT	348.7	121.8	190.8	274.6	Hoback River	5	123	78
HENRYS LAKE	90.4	88.3	87.3	81.8	Greys River	4	111	70
RIRIE	96.5	58.2	62.5	63.5	Salt River	5	2128	66
					Willow Creek	7	1729	67
					Blackfoot River	3	0	58
					Portneuf River	2	0	104
					Toponce Creek	0	0	0

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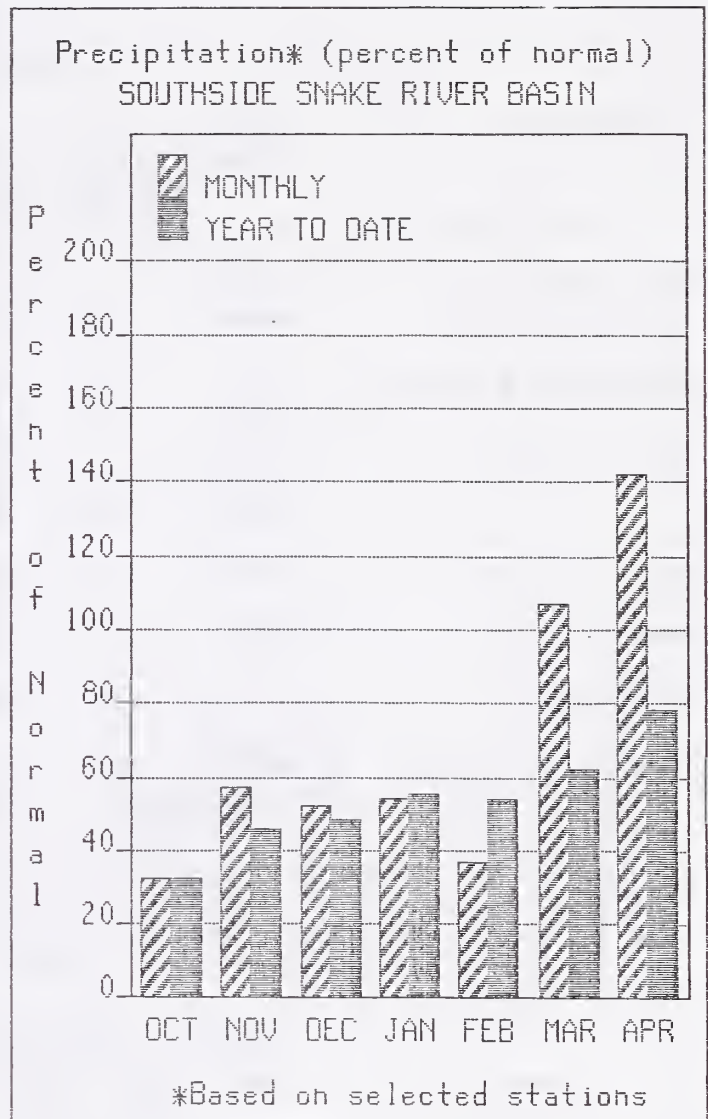
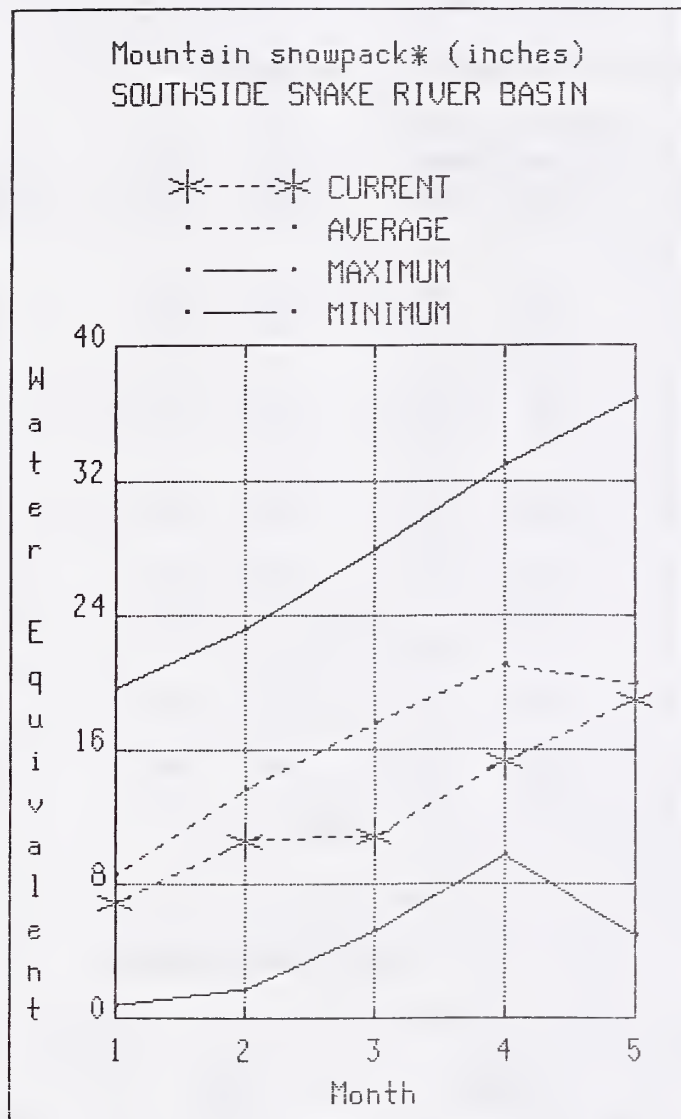
The average is computed for the 1961-1985 base period.

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Southside Snake River Basin

May 1, 1991



WATER SUPPLY OUTLOOK

Cool temperatures have delayed snowmelt along the southern edge of the state 3-4 weeks later than normal. As a result, May 1 snow surveys show a potentially misleading "improvement" in snowpacks over last month, when expressed as percent of average. Currently, snowpacks range from 88% of average in Salmon Falls Creek basin to 106% above Oakley Reservoir. May-September streamflow forecasts, however, continue to call for well below normal volumes, ranging from 38% of average for Oakley Reservoir inflow to 65% for the Bruneau at Hot Springs. Very low reservoir storage in Salmon Falls and Oakley Reservoirs further compounds the bleak water supply outlook. All of these factors point to the possibility of critically short water supplies this summer. All water users should keep in touch with their local irrigation district for more specific information.

SOUTHSIDE SNAKE RIVER BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	<----- DRIER ----- FUTURE CONDITIONS ----- WETTER ----->							25 YR. (1000AF)
		CHANCE OF EXCEEDING *							
		90% (1000AF)	70% (1000AF)	50% (MOST PROBABLE) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)		
OAKLEY RESERVOIR inflow	MAY-SEP	1.5	5.0	9.4	38	13.8	17.8	25	
	MAY-JUL	1.3	3.8	8.0	36	12.2	15.6	22	
SALMON FALLS CK nr San Jacinto	MAY-SEP	7.0	13.0	26	39	40	60	67	
	MAY-JUL	6.0	11.0	24	39	37	56	62	
BRUNEAU nr Hot Spring	MAY-SEP	71	102	122	65	143	173	188	
	MAY-JUL	68	96	115	65	134	162	176	
OWYHEE nr Gold Ck (2)	MAY-JUL	1.4	4.6	8.3	58	12.0	17.4	14.4	
OWYHEE nr Owyhee (2)	MAY-JUL	8.0	24	34	59	45	60	58	
OWYHEE nr Rome	MAY-JUL	20	48	88	39	128	188	223	
OWYHEE RESERVOIR inflow (1,2)	MAY-SEP	16.0	67	109	42	152	245	260	
	MAY-JUL	19.0	56	97	42	138	230	232	

RESERVOIR STORAGE

(1000AF)

WATERSHED SNOWPACK ANALYSIS

RESERVOIR	USEABLE ; CAPACITY ;	** USEABLE STORAGE **			WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF	
		THIS YEAR	LAST YEAR	AVG.			LAST YR.	AVERAGE
OAKLEY	77.4	16.0	19.1	39.2	Raft River	1	507	95
SALMON FALLS	182.6	29.2	46.4	81.4	Goose-Trapper Creeks	1	550	106
OWYHEE	715.0	280.5	524.5	619.0	Salmon Falls Creek	8	444	88
					Bruneau River	5	320	98
					Owyhee River	2	0	102

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

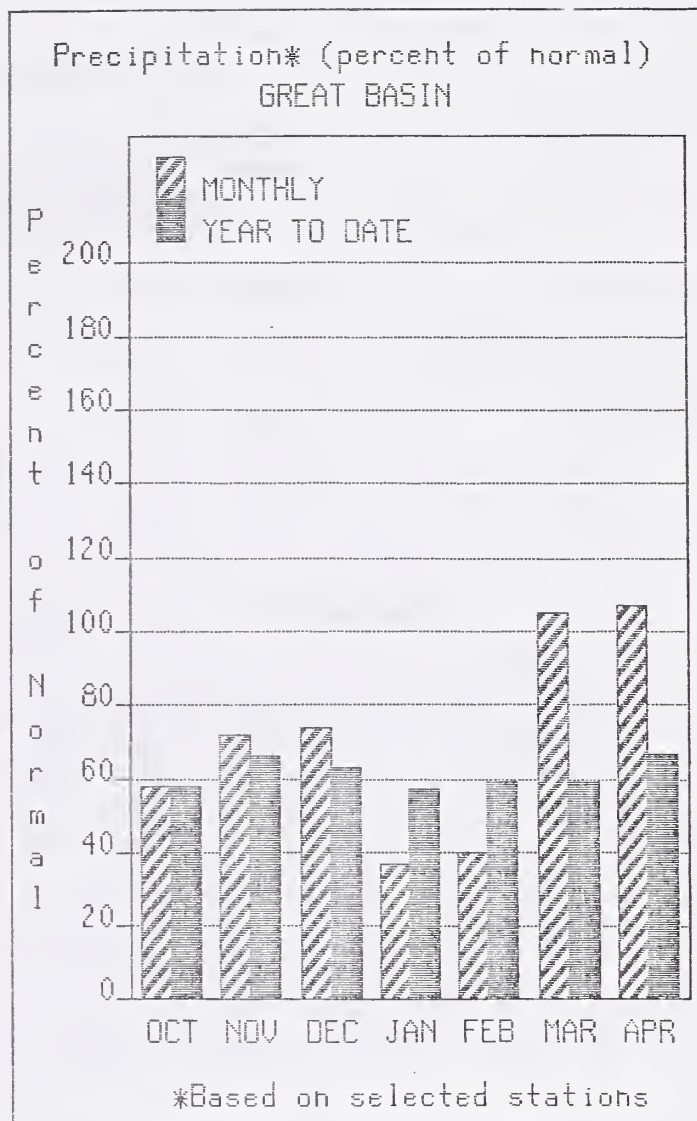
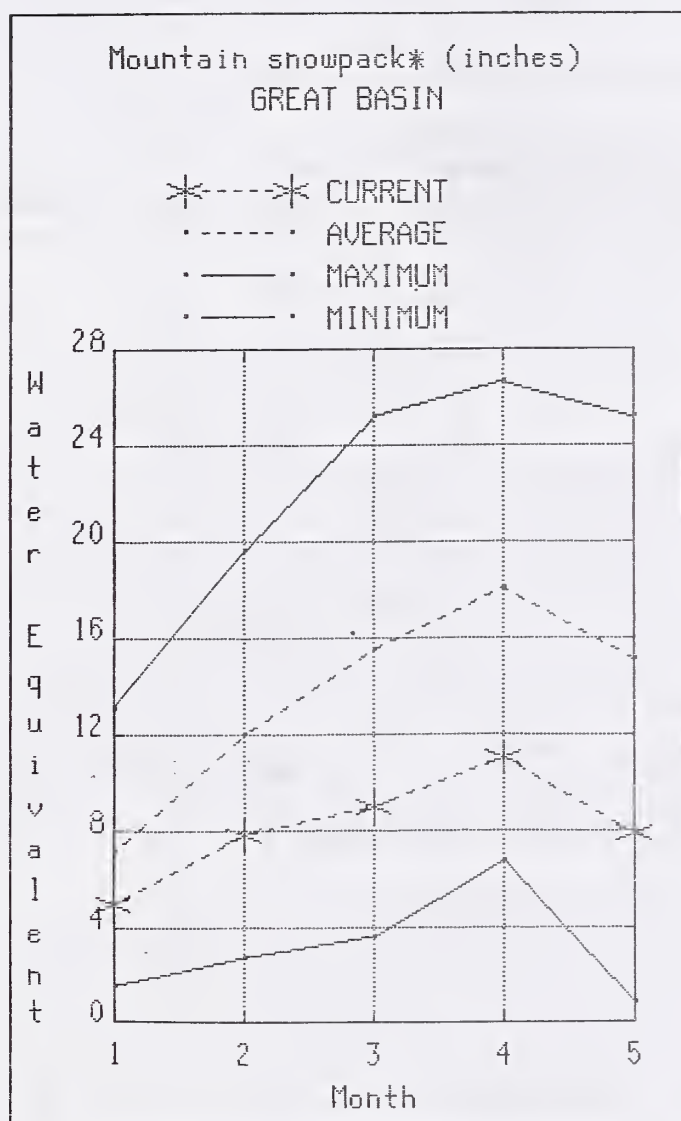
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Great Basin

May 1, 1991



WATER SUPPLY OUTLOOK

In spite of above normal precipitation during April, the mountain snowpack continues to be well below normal. Currently, snowpacks range from 52% of average in the Montpelier Creek basin to 82% in the Mink Creek basin. Streamflow forecasts for the coming season continue to reflect these below normal snowpack conditions and range from 57% of average for the Bear River to 65% for Montpelier Creek near Montpelier. Storage is well below normal in Bear Lake and Montpelier Creek Reservoirs. All these factors point to the possibility of critically short water supplies in the Great Basin this summer. All water users should keep in touch with their local irrigation district for more specific information.

GREAT BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	<div> <div><----- DRIER -----</div> <div>FUTURE CONDITIONS</div> <div>----- WETTER -----></div> </div>						
		CHANCE OF EXCEEDING *						
		90% (1000AF)	70% (1000AF)	50% (MOST PROBABLE) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	25 YR. (1000AF)
BEAR nr Harer	APR-SEP	24	116	178	57	240	330	310
MONTPELIER CK nr Montpelier	MAY-SEP	2.3	5.3	7.3	65	9.3	12.3	11.3
CUB nr Preston	MAY-SEP	7.0	21	31	61	41	55	51
	MAY-JUL	6.0	19.0	28	61	37	50	46

RESERVOIR STORAGE (1000AF)					WATERSHED SNOWPACK ANALYSIS			
RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF	
		THIS YEAR	LAST YEAR	AVG.			LAST YR.	AVERAGE
BEAR LAKE	1421.0	530.3	758.7	1059.0	Bear River (above Harer)	12	191	75
MONTPELIER CREEK	4.0	1.4	1.4	2.3	Montpelier Creek	6	370	52
					Mink Creek	1	1141	82
					Cub River	3	460	80
					Malad River	1	0	19

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(2) - The value is natural flow - actual flow may be affected by upstream water management.

Basin Outlook Reports

and Federal - State - Private Cooperative Snow Surveys

For more water supply and resource management information, contact:

**USDA, Soil Conservation Service
Snow Survey Data Collection Office
3244 Elder Street, Room 124
Boise, Idaho 83705
(208) 334-1614 FTS 554-1614**

How forecasts are made

Most of the annual streamflow in the Western United States originates as snowfall that has accumulated high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are combined with snowpack data to prepare runoff forecasts. Streamflow forecasts are coordinated by Soil Conservation Service and National Weather Service hydrologists. This report presents a comprehensive picture of water supply conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data, and narratives describing current conditions.

Snowpack data are obtained by using a combination of manual and automated SNOTEL measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation and temperature are monitored on a daily basis and transmitted via meteor burst telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

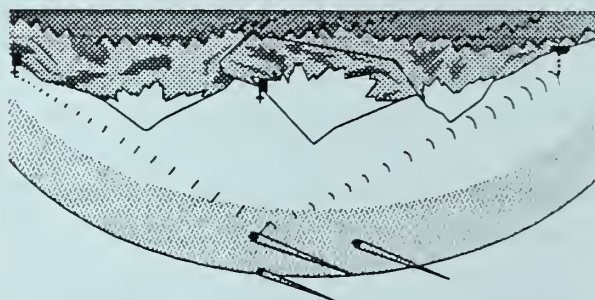
Forecast uncertainty originates from two sources: (1) uncertainty of future hydrologic and climatic conditions, and (2) error in the forecasting procedure. To express the uncertainty in the most probable forecast, four additional forecasts are provided. The actual streamflow can be expected to exceed the most probable forecast 50% of the time. Similarly, the actual streamflow volume can be expected to exceed the 90% forecast volume 90% of the time. The same is true for the 70%, 30%, and 10% forecasts. Generally, the 90% and 70% forecasts reflect drier than normal hydrologic and climatic conditions; the 30% and 10% forecasts reflect wetter than normal conditions. As the forecast season progresses, a greater portion of the future hydrologic and climatic uncertainty will become known and the additional forecasts will move closer to the most probable forecast.

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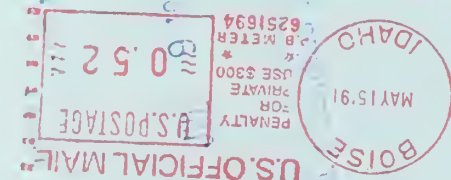
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Basin Outlook Reports



In addition to basin outlook reports, a Water Supply Forecast for the Western United States is published by the Soil Conservation Service and National Weather Service monthly, January through May. Reports may be obtained from the Soil Conservation Service, West National Technical Center, 511 Northwest Broadway, Room 248, Portland, OR 97209-3489.

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